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calls the attention of analysts to this subject, as having frequently misled them in respect to the loss obtained by subjecting minerals to heat, which they have too commonly ascribed to the mere evaporation of aqueous matter.

Mr. Knox found bitumen in nearly all the minerals belonging to Werner's Flötz Trap formation. He also found it in a few of the substances appertaining to the older rocks; but in the latter case it was smaller in quantity, and less easily separable.

In conclusion, the author recommends distillation as a process to be resorted to in all analyses of stony substances, with a view of obtaining the liquid bitumen which they may have contained, and also of estimating the proportion of carbon evolved in the state of gas. The residuum, he observes, should be carefully examined for the remaining carbon.

On certain Changes which appear to have taken place in the Positions of some of the principal fixed Stars. By John Pond, Astronomer Royal, F.R.S. Read June 19, 1823. [*Phil. Trans.* 1823, p. 529.]

The Croonian Lecture. On the Internal Structure of the Human Brain, when examined in the Microscope, as compared with that of Fishes, Insects and Worms. By Sir Everard Home, Bart. V.P.R.S. Read November 20, 1823. [*Phil. Trans.* 1824, p. 1.]

In this lecture the author pursues his researches respecting the anatomy of the human brain, and compares it with that of fishes, insects, and worms, in the hope of developing the connexion between the action of the nerves and the motion of the muscles. To obviate the sources of error attendant upon the usual methods of dissecting and examining the brain, a portion of it in a very recent state was submitted to the microscope, after having been immersed in distilled water. Rows of globules were thus detected passing in straight lines from the circumference of the cortical substance into the medullary portion, the appearance of which is shown by Mr. Bauer in an annexed drawing. From a representation, also by Mr. Bauer, of the tench, it appears that its relative proportion to the size of the animal is smaller than in the bird,—that it has a central cavity and a nodulated basis. In insects the brain contains, and its principal portion is connected by, nervous chords, with what is usually called a ganglion, but which, when examined accurately, is found to resemble the brain in texture, and which, from the office of the nerves it sends off, the author considers, as *Medulla oblongata*. Below this is a regular line of ganglions united by a double nerve, the details of these structures being illustrated by annexed drawings.

Among insects the bee has the largest proportion of brain relative to the size of its body. In the moth and caterpillar it is smaller, but similar in structure, as also in the lobster. In the garden snail the brain is relatively larger than in the bee, but there are no ganglions, although the structure of the *Medulla spinalis* is the same.

In all animals the minute structure of the brain, as detected by the microscope, appears in a measure similar, consisting of globules, and a more or less fluid and often elastic transparent matter. The ganglions appear also similarly composed in all the animal tribes of a congeries of nervous fibres.

Some Observations on the Migration of Birds. By the late Edward Jenner, M.D. F.R.S. ; with an Introductory Letter to Sir Humphry Davy, Bart. P.R.S. By the Rev. G. C. Jenner. Read November 27, 1823. [*Phil. Trans.* 1824, p. 11.]

The author's intention in this paper is not to give a general history of the migration of birds, but to adduce some hitherto unnoticed facts respecting the causes which excite the bird at certain seasons of the year to quit one country for another. Among these the most prominent are certain changes in the generative organs, and the necessity of a climate or country where they can be better accommodated with succours for their infant brood than in that from which they depart. He also adduces facts to prove that their departure from this country is not in consequence of change of temperature or scarcity of food, but the result of the accomplishment of their errand, namely, the incubation and rearing their young.

The author then offers some remarks on the winter birds of passage, tending to show that they quit this country in spring in quest of a situation better adapted to their intended purpose, and that they are actuated by the same impulse in leaving this country that causes the spring birds to come to it, and not by want of food. That the emigration of the winter birds is less complete than that of the spring migrators, and that some species, especially the wild duck and wood-pigeon, breed here.

Redwings and fieldfares appear to be the most regular and uniform in their appearance and disappearance, and never seem to risk the trial of incubation here.

Dr. Jenner remarks, that in severe and long-continued frosts, birds often quit the country through want of food, but that they return upon the approach of more temperate weather, which is announced by their reappearance. The arrival of water birds, on the contrary, forebodes the approach of intense frost.

The author then offers some observations on the singing of birds, and details some additional facts and particulars respecting the different sizes of the generative organs of birds, as they appear at different seasons of the year.

On the Nature of the Acid and Saline Matters usually existing in the Stomachs of Animals. By William Prout, M.D. F.R.S. Read December 11, 1823. [*Phil. Trans.* 1824, p. 45.]

The object of this communication is to prove that the free acid usually existing in the stomachs of animals is the muriatic acid, and that the salts present are alkaline muriates.